

**REMARKS****I. General**

Claims 1-27 are pending in the present application. Applicant notes with appreciation that the Examiner has indicated that claims 4, 15, and 27 include patentable subject matter and would be allowed if rewritten in independent form.

Claims 1, 3, 5, 7, 10-13, 16-18, 20, 21, 23, 24, and 26 stand rejected under 35 U.S.C. § 102. Claims 2, 6, 8-9, 14, 19, 22, and 25 stand rejected under 35 U.S.C. § 103. Applicant respectfully traverses the rejections of record.

Claims 25 and 26 have been amended to correct informality discovered during the preparation of the present amendment. Specifically, an erroneous recitation of “antennas” has been replaced with “channels” in each of these claims, no new matter has been added and the scope of these claims remains unchanged.

**II. The 35 U.S.C. § 102 Rejections**

Claims 1, 3, 5, 7, 10, 18, 20, and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Searle et al., United States patent number 6,038,459 (hereinafter *Searle*). Claims 11-13, 16, 17, 23, 24, and 26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Raleigh et al., United States patent number 6,452,981 (hereinafter *Raleigh*).

To anticipate a claim under 35 U.S.C. § 102, a reference must teach every element of the claim, see M.P.E.P. § 2131. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference,” M.P.E.P. § 2131 (citing *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)). Moreover, in order for a prior art reference to be anticipatory under 35 U.S.C. § 102 with respect to a claim, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim,” see M.P.E.P. § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913 (Fed. Cir. 1989)). Applicant asserts that the art of record does not teach every element of the claims and does not show the identical invention in as complete detail as is contained in the claims.

**A. The Rejections Based Upon Searle****1. The Independent Claims**

Claim 1 recites that “a limited number of said antenna interfaces are coupled to a same antenna of said plurality of antennas . . . .” In contrast to the foregoing, *Searle* teaches that “any number of transmitters or receivers can be connected simultaneously to any one beamformer port,” column 5, lines 45-47. Accordingly, the claim is not anticipated under 35 U.S.C. § 102 by *Searle*.

Claim 1 further recites that “said controller is operable to apply a configuration . . . that provides priority to selected ones of a plurality of channels . . . .” To aid the Examiner in better understanding the claim, attention is directed toward the specification at paragraph 0008 wherein embodiments are described as giving priority in antenna assignments which will exhibit the highest quality channel metric for channels with the highest forward-link power. Where “a limited number of antenna interfaces are coupled to a same antenna of said plurality of antennas,” as recited in claim 1, channels which are not given priority may be assigned to non-optimal antennas out of the remaining antennas, as described at paragraph 0011 of the specification.

In contrast to the language of claim 1, *Searle* does not provide priority to selected channels of a plurality of channels when assigning antenna beams. Instead, *Searle* operates to assign each channel to a best beam, with no priority among beams and irrespective of which channels are assigned to a same beam, see column 5, lines 62-65. Accordingly, *Searle* does not teach the identical invention in as complete detail as set forth in the claim as required under 35 U.S.C. § 102.

Claim 18 recites that “said controller means is operable to cause said switching means to switch a forward-link signal associated with a highest transmit power to an antenna means that is associated with a highest channel quality metric for the reverse-link signal that corresponds to said forward-link signal . . . .” The rejection of record relies upon the rejection of claim 1 in rejecting claim 18, see the Office Action at page 2. However, the rejection of claim 1 fails to address at least the foregoing aspect of the claim. Accordingly, a *prima facie* showing of anticipation under 35 U.S.C. § 102 has not been made.

Moreover, *Searle* fails to teach or suggest the aforementioned claim limitation. *Searle* teaches measuring the quality of signals in each beam for selection of a “best” beam for assignment, see column 5, lines 55-65. However, *Searle* does not teach or suggest assigning a signal having a highest transmit power to an antenna means having a highest channel quality metric. Accordingly, *Searle* does not teach the invention as set forth in the claim as required under 35 U.S.C. § 102.

## 2. The Dependent Claims

Claims 3, 5, 7, 10, 20, and 21 each depend directly or indirectly from a respective one of claims 1 and 18, and thus incorporate the limitations thereof. Applicant has shown how *Searle* does not meet the limitations of independent claims 1 and 18. Accordingly, claims 3, 5, 7, 10, 20, and 21 are asserted to be patentable over *Searle* at least for the reasons set forth above with respect to claims 1 and 18.

Moreover, the dependent claims recite additional new and non-obvious limitations not present in *Searle*. For example, claim 3 recites “a coherent receiver that is operable to calculate a carrier-to-interference (C/I) ratio . . . .” *Searle* does not teach a coherent receiver, nor has the Examiner asserted otherwise.

Claim 5 recites that “said controller is operable to determine said configuration of said antenna interfaces to said plurality of antenna by minimizing a summation of forward-link power of a plurality of channels . . . .” Similarly, claim 21 recites that “said controller means is operable to determine an assignment combination of forward-link signals of said plurality of channels to said plurality of antenna means that minimizes a summation of forward-link power of each of said plurality of channels . . . .” The rejection of record asserts that *Searle* discloses that the system minimizes a forward-link power, the Office Action at page 3. However, the disclosure relied upon in rejecting the claim merely teaches that the linear power amplifiers are placed on the antenna side of a beam forming matrix to provide a configuration in which a beam signal is spread by the beam forming matrix such that the power of each amplifier is relatively small, see column 6, lines 54-67. The foregoing does not address summation of the forward-link power of a plurality of channels as set forth in the claims.

Claim 7 recites that “said controller is operable to successively assign a plurality of channels to said plurality of antennas . . . .” The rejection of record relies upon *Searle* teaching that communication channel allocations are repeated from subarray to subarray (i.e., cellular channel reuse patterns are implemented) to meet the claim, the Office Action at page 3. However, the foregoing does not address successively assigning a plurality of channels to the plurality of antennas. Moreover, *Searle* does not teach that the controller is operable to assign the communication channels from subarray to subarray.

## **B. The Rejections Based Upon Raleigh**

### **1. The Independent Claims**

Claim 11 recites “assigning . . . said plurality of channels to said plurality of antennas . . . by selecting the antenna assignment that minimizes total forward-link transmit power.” Similarly, claim 23 recites “assigning . . . said plurality of channels to said plurality of antennas . . . such that . . . assignment of said plurality of channels to said plurality of antennas minimizes total forward-link transmit power.” The Examiner asserts that *Raleigh* teaches assigning the plurality of channels to minimize transmit power, see the Office Action at page 4. However, the foregoing does not meet the claim limitation. In particular, the claim requires selecting the antenna assignment that minimizes total forward-link transmit power, not just minimizing transmit power. Accordingly, a *prima facie* showing of anticipation under 35 U.S.C. § 102 has not been made.

Moreover, the disclosure of *Raleigh* relied upon in rejecting these claims does not teach minimizing transmit power, much less minimizing total forward-link transmit power. Column 22, lines 5-15, of *Raleigh*, relied upon in rejecting the foregoing aspect of the claim, teaches maximizing average power delivered to receivers of interest while minimizing power delivered to other undesired receivers. Accordingly, the identical invention in as complete detail as set forth in the claim is not present in *Raleigh* as required under 35 U.S.C. § 102.

Claim 23 further recites “assigning . . . said plurality of channels to said plurality of antennas . . . such that . . . no more than one channel is concurrently transmitted from a respective antenna . . . .” This aspect of the claim remains unaddressed by the rejection of

record. Accordingly, a *prima facie* showing of anticipation under 35 U.S.C. § 102 has not been made.

## 2. The Dependent Claims

Claims 12, 13, 16, 17, 24, and 26 each depend directly or indirectly from a respective one of claims 11 and 23, and thus incorporate the limitations thereof. Applicant has shown how *Raleigh* does not meet the limitations of independent claims 11 and 23. Accordingly, claims 12, 13, 16, 17, 24, and 26 are asserted to be patentable over *Raleigh* at least for the reasons set forth above with respect to claims 11 and 23.

Moreover, the dependent claims recite additional new and non-obvious limitations not present in *Raleigh*. For example, claims 12 and 24 recite “assigning said plurality of channels . . . when both of the following conditions are true: (i) fading rate of *Raleigh* fading of said plurality of channels is sufficiently low; and (ii) frequency hopping averaging does not allow for shadowing fading estimation,” (emphasis added). The rejection of record relies upon various portions of *Raleigh* disclosing *Raleigh* fading and frequency hopping, see the Office Action at page 4. However, neither the rejection of record nor the identified portions of *Raleigh* teach or suggest assigning channels when both of the foregoing conditions are true.

Claim 13 recites that “said plurality of channels are assigned to said plurality of antennas in a successive manner . . . .” Similarly, claim 26 recites that “said plurality of channels are successively assigned to different antennas . . . .” The rejection of record asserts that *Raleigh* teaches the foregoing, see the Office Action at page 4. However, the portions of *Raleigh* relied upon in rejecting the claim merely teach that “Fig. 26 shows the operation of the trellis encoder and the trellis state diagram for the decoder for four successive symbol transmissions” and “Continuing in succession, a third space frequency subchannel is assigned only two bits to an encoder input 354 so there are no parallel transitions considered by a trellis decoder state diagram 344,” column 24, lines 61-64, and column 25, lines 24-25. The foregoing does not meet the claims, and is not even directed to relevant subject matter.

Claim 16 recites that “said assigning in said first mode of operation is operable to calculate a respective forward-link power summation for a plurality of assignment

combinations of said plurality of channels to said plurality of antennas.” The rejection of record asserts that *Raleigh* discloses determining (calculating) power for assignment, see the Office Action at page 4. However, even assuming *arguendo* that the foregoing is correct, the rejection of record does not establish that *Raleigh* discloses calculating a respective forward-link power summation for a plurality of assignment combinations as set forth in the claim.

Claim 17 recites “switching reverse-link signals from said plurality of antennas to a plurality of transceivers . . . .” The rejection of record relies upon *Raleigh* teaching “The retransmission request is made through a Reverse Link Control Channel 460” and “the required feedback from the receiver to the transmitter requires a significant portion of the available reverse link bit rate,” see the Office Action at page 4. However, the identified disclosure of *Raleigh* does not even address switching reverse-link signals.

### III. The 35 U.S.C. § 103 Rejections

Claims 2, 8, 9, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Searle* in view of *Raleigh*. Claims 6 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Searle* in view of Heath, Jr. et al., United States patent number 6,298,092 (hereinafter Heath). Claims 14 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Raleigh* in view of *Heath*.

To establish a *prima facie* case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the second criteria, Applicant respectfully asserts that the references lack proper motivation to combine in addition to lacking all the claim limitations.

Claims 2, 6, 8, 9, 14, 19, 22, and 25 each depend directly or indirectly from a respective one of claims 1, 11, 18, and 23, and thus incorporate the limitations thereof. Applicant has shown how *Searle* does not meet the limitations of independent claims 1 and 18. Likewise, Applicant has shown how *Raleigh* does not meet the limitations of claims 11

and 23. The 35 U.S.C. § 103 rejections of record do not cure the deficiencies identified with respect to *Searle* and *Raleigh* meeting the base claims. Accordingly, claims 2, 6, 8, 9, 19, and 22 are asserted to be patentable over *Searle* at least for the reasons set forth above with respect to claims 1 and 18 and claims 14 and 25 are asserted to be patentable over *Raleigh* at least for the reasons set forth above with respect to claims 11 and 23.

Moreover, proper motivation has not been provided for the modifications to *Searle* and *Raleigh* proffered in the Office Action to meet the present claims. For example, the 35 U.S.C. § 103 rejections of record based upon *Searle* in view of *Raleigh*, *Searle* in view of *Heath*, and *Raleigh* in view of *Heath* generally aver that the secondary reference teaches some aspect of the claims missing from the primary reference and, therefore, it would have been obvious to one of ordinary skill in the art to modify the primary reference to include the identified aspect of the secondary reference “in order to improve the channel selection performance in a base station,” see the Office Action at pages 5-7. However, the art of record does not provide any suggestion that such a modification would result in any improvement in the system of the respective primary references, nor has the Examiner shown otherwise. Accordingly, the statement of motivation is nothing more than a statement that the references could be combined to provide some unsuggested and unknown improvement.

However, it is well settled that the fact that references can be combined or modified is not sufficient to establish a *prima facie* case of obviousness, M.P.E.P. § 2143.01. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, M.P.E.P. § 2143.01 (citing *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)). Thus, the motivation provided by the Examiner is improper, as the motivation must establish the desirability for making the modification.

Moreover, M.P.E.P. § 706.02(j) directs the Examiner to set forth in the Office action: (1) the relevant teachings of the prior art relied upon; (2) the difference or differences in the claim over the applied references; (3) the proposed modification of the applied references necessary to arrive at the claimed subject matter; and (4) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. The rejection of record merely states that the primary references may

be modified to include certain aspects of the secondary references, without stating how the primary reference is to be modified to arrive at the claimed subject matter. Accordingly, the 35 U.S.C. § 103 rejections of record do not comport with Office policy.

#### **IV. Summary**

In view of the above, Applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 65948/P071US/10315934 from which the undersigned is authorized to draw.

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Respectfully submitted,

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